

**ORAL ARGUMENT NOT YET SCHEDULED**

No. 17-70196

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**In The United States Court of Appeals  
For the Ninth Circuit**

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NATIONAL FAMILY FARM COALITION, *et al.*,  
*Petitioners,*

v.

U.S. ENVIRONMENTAL PROTECTION AGENCY, *et al.*,  
*Respondents,*

and

MONSANTO COMPANY,  
*Intervenor-Respondent.*

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On Petition for Review of Agency Action  
of the United States Environmental Protection Agency

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**MOTION OF AMERICAN SOYBEAN ASSOCIATION AND AMERICAN  
SUGARBEET GROWERS ASSOCIATION FOR LEAVE TO FILE  
AMICUS CURIAE BRIEF IN SUPPORT OF INTERVENOR-  
RESPONDENT MONSANTO COMPANY**

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Pursuant to Federal Rule of Appellate Procedure 29 and Ninth Circuit Rule 29-3, the American Soybean Association and American Sugarbeet Growers' Association (together, "the Growers") respectfully request leave to file the attached *amicus curiae* brief in support of Intervenor-Respondent Monsanto Company. In support of this Motion, the Growers state as follows:

1. No party objects to the filing of this brief. Counsel for *amici curiae* endeavored to obtain consent from all parties before filing this motion. Intervenor-Respondent Monsanto Company consents to the filing of the brief, Petitioners take no position on the filing of the brief, and EPA does not object to the filing of the brief.

2. The Growers are trade associations who represent more than 310,000 farmers nationwide. The Growers cultivate, market, and sell two crops — soybeans and sugarbeets — that are a major component of the domestic and international supply of food, feed, and fuel, the agricultural economy, and global nutrition. The Growers have a direct and immediate interest in the continued availability and development of the herbicide at issue in this case, Xtendimax. The Growers' brief is desirable and relevant because their first-hand experience places them in a unique position to provide the Court with information about the importance of Xtendimax. Further, the outcome of this case will have a direct effect on the Growers, their productivity, their livelihoods, and their contributions to society.

3. Accordingly, the Growers respectfully request leave to file the *amicus curiae* brief attached to this motion as Exhibit 1.

Respectfully submitted,

s/ Bartholomew J. Kempf

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Bartholomew J. Kempf

*Counsel for the American Soybean  
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**CERTIFICATE OF SERVICE**

I hereby certify that on April 30, 2018, I electronically filed the foregoing with the Clerk of the Court using the CM/ECF system which will send notification of such filing to all registered CM/ECF users.

s/ Bartholomew J. Kempf  
\_\_\_\_\_  
Bartholomew J. Kempf

# **EXHIBIT 1**

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**BRIEF OF AMICI CURIAE AMERICAN SOYBEAN ASSOCIATION AND  
AMERICAN SUGARBEET GROWERS ASSOCIATION IN SUPPORT OF  
INTERVENOR-RESPONDENT MONSANTO COMPANY**

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## **CORPORATE DISCLOSURE STATEMENT**

Pursuant to Fed. R. App. P. 26.1, the American Soybean Association and the American Sugarbeet Growers Association state that neither of them has a parent corporation, nor does any publicly held corporation own 10% or more of the stock of either of them.

s/ Bartholomew J. Kempf  
\_\_\_\_\_  
Bartholomew J. Kempf

Dated: April 30, 2018

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## INTEREST OF AMICI CURIAE

These *amici* — the American Soybean Association and the American Sugarbeet Growers’ Association (together, “the Growers”) — are national trade associations who represent more than 310,000 farmers nationwide.<sup>1</sup> The Growers cultivate, market, and sell two key agricultural crops — soybeans and sugarbeets — that are a major component of the domestic and international supply of food, feed, and fuel, the agricultural economy, and global nutrition. The Growers have a direct and immediate interest in the continued availability and development of Monsanto’s dicamba-based cropping systems, which include both dicamba-tolerant plants and the dicamba herbicide at issue in this case, Xtendimax. Xtendimax is currently approved for “over the top” use — *i.e.*, use during the growing season directly to dicamba-tolerant soybeans, which have been widely adopted by soybean growers. Sugarbeet growers hope and expect that dicamba-tolerant crop technology will be

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<sup>1</sup> Founded in 1920, the American Soybean Association (“ASA”) is a national, private, not-for-profit association representing U.S. soybean growers on domestic and international issues of importance to the soybean industry. ASA is a grassroots, voluntary-membership organization with members in 30 states; it represents the interests of more than 300,000 soybean farmers nationwide. *See* ASA, <https://soygrowers.com/> (last visited April 30, 2018). The American Sugarbeet Growers Association (“ASGA”) unites sugarbeet growers in the United States and promotes the common interests of state and regional beet grower associations. ASGA represents 10,000 family farmers in all 11 states that produce sugarbeets: California, Colorado, Idaho, Michigan, Minnesota, Montana, Nebraska, North Dakota, Oregon, Washington and Wyoming. *See* ASGA, <https://americansugarbeet.org/who-we-are/> (last visited April 30, 2018).

available in the coming years for sugarbeets.<sup>2</sup>

The use of Xtendimax on dicamba-tolerant soybeans (and future use on sugarbeets) combats one of growers' most pressing farm-management challenges: weeds that are resistant to the herbicide glyphosate. When present, glyphosate-resistant weeds can damage crops, reduce yields, and increase weed-management expenses. Glyphosate-resistant weeds threaten to undermine Growers' utilization of vital seed technologies and decades of progress in farm management, agricultural technology, and sustainable agriculture. Xtendimax is critical not only to fighting glyphosate-resistant weeds, but also to arresting the development of further herbicide resistance in weed populations.

This case is important to the Growers because it goes to the heart of their ability to operate their farms in a sustainable manner; provide the world with food, fuel, and feed; meet ever-increasing global nutrition needs; invest in biotechnology; drive the agricultural economy; and rely on science-based regulatory decision-making and governmental oversight.<sup>3</sup>

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<sup>2</sup> In 2015, Monsanto and KWS SAAT Research, a plant breeding company, announced a partnership to develop dicamba-resistant sugarbeet technology. See *The Sugarbeet Grower, KWS & Monsanto Developing Triple-Stack Herbicide Trait*, <https://www.sugarpub.com/around-the-industry/kws-monsanto-developing-triple-stack-herbicide-trait> (last visited April 30, 2018).

<sup>3</sup> Contemporaneously with this brief, the Growers have filed a motion for leave to file an *amicus* brief in these proceedings; no party has objected to the filing of this brief. Pursuant to Federal Rule of Appellate Procedure, Rule 29(a)(4)(E), the

## SUMMARY OF THE ARGUMENT

Overturning the U.S. Environmental Protection Agency's ("EPA") registration of Xtendimax would harm the Growers, in turn threatening their ability to contribute to domestic and international markets, the agricultural economy, and global nutrition needs. Soybeans and sugarbeets are important agricultural crops, significant components of the world's supply of food, fuel, and feed, and major contributors to the overall agricultural economy.

Almost universally, soybean and sugarbeet growers rely on seed technologies that have been genetically engineered to be resistant to herbicides, including glyphosate. Glyphosate-resistant seed technology is an integral part of farmers' weed-management systems because glyphosate is a broad-spectrum herbicide: it is effective against a wide range of weeds. These seed technologies were a major advancement because they made managing weeds more effective and less expensive, and they enabled growers to adopt sustainable and environmentally-beneficial farm-management practices.

In recent years, glyphosate-resistant weeds have emerged as a farm-management challenge to soybean and sugarbeet growers. Resistance is not unique

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Growers certify that this brief was not written in whole or in part by counsel for any party, and that no person or entity other than the amici, their members, and their counsel has made a monetary contribution to the preparation and submission of this brief.



to glyphosate and has been documented with respect to many herbicides and other pesticides. Resistant weeds, where present, can impact crops in ways that are difficult to control and depress production and yields. The adverse impacts that some soybean and sugarbeet growers have experienced due to glyphosate-resistant weeds threaten to undermine their investments in advanced seed technologies, along with many of the benefits that came with those investments.

Xtendimax is an important tool in farmers' weed-management systems because it effectively controls glyphosate-resistant weeds as well as other weed species. When Xtendimax, a dicamba-based herbicide, is used on dicamba-tolerant soybeans during the growing season, it not only controls glyphosate-resistant weeds, but also reduces glyphosate-resistant weed seed banks, thereby reducing the weed threat to crops in future seasons.

With the benefit of Xtendimax, soybean growers set record production and crop yield levels during the 2017 growing season. Sugarbeet growers, particularly those endeavoring to delay and fight glyphosate-resistant weeds without the benefit of Xtendimax, are eager for the development and approval of dicamba-tolerant sugarbeets so Xtendimax can be used as part of their weed-management systems. Accordingly, it is crucial to soybean and sugarbeet farmers – and their overall contributions to food, feed, and fuel supplies and the agricultural economy – that this Court uphold EPA's decision to register Xtendimax.

The interests of the Growers reach beyond this herbicide and this case. Soybean and sugarbeet growers depend on EPA to make regulatory decisions based on scientific data and in a timely fashion. They urgently need access to the most up-to-date tools of modern agriculture so that they may respond quickly and effectively to the challenges they face. Accordingly, the Growers urge this Court to review EPA's determinations about Xtendimax through the proper lens of great deference to the agency's scientific expertise. EPA is specially equipped to evaluate the risks and benefits of Xtendimax and resolve highly technical scientific disagreements and controversies concerning it. EPA acted within its area of expertise in deciding to register Xtendimax, and that decision should not be disturbed.

## **ARGUMENT**

### **I. Overturning EPA's registration of Xtendimax would harm the Growers, in turn undermining their contributions to the domestic and international food, feed, and fuel supply, the agricultural economy, and global nutrition.**

If this Court were to overturn the EPA's decision to register Xtendimax, it would significantly harm the Growers and threaten their important contributions to the domestic and international food, feed, and fuel supply, the agricultural economy, and global nutrition.

**A. Soybeans and sugarbeets play a key role in domestic and international agriculture and nutrition.**

**1. Soybeans**

Soybeans are an essential agricultural commodity. *See* Petitioners' Excerpts of Record ("ER") 028. Soybeans and soybean oil are prominent in a wide variety of domestic supply chains: soybeans are a key ingredient in many food products, industrial products, and pharmaceutical products, as well as animal feed and biodiesel fuel. According to the U.S. Department of Agriculture ("USDA"), processed soybeans are the world's largest source of animal protein feed, and soybean oil comprises nearly 70% of oils consumed in domestic households.<sup>4</sup> Approximately half of all American biodiesel is produced from soybean oil.<sup>5</sup> One bushel of soybeans produces enough soybean oil to make 1.5 gallons of biodiesel, and domestic biodiesel production exceeded 1.8 billion gallons in 2016.<sup>6</sup>

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<sup>4</sup> *See* USDA, Monsanto Pets. (10-188-01p and 12-185-01p) for Determinations of Nonregulated Status for Dicamba-Resistant Soybean and Cotton Varieties, Final Env'tl. Impact Statement ("Soybean FEIS") (2014) at 93, *available at* [https://www.aphis.usda.gov/brs/aphisdocs/dicamba\\_feis.pdf](https://www.aphis.usda.gov/brs/aphisdocs/dicamba_feis.pdf).

<sup>5</sup> *See* ASA, <https://soygrowers.com/issues-pages/biodiesel/> (last visited April 30, 2018).

<sup>6</sup> *See* SoyStats, <http://soystats.com/biodiesel-u-s-production-history/> (last visited April 30, 2018). *SoyStats* is a reference guide to soybean facts and figures prepared by the ASA using data gathered by USDA, the National Agriculture Statistics Service, and the National Biodiesel Board.

As a result, soybeans are an extremely important part of the domestic agricultural economy, and they generate significant value. In 2016, soybeans accounted for approximately 31% of crop area planted in the United States – or 83.4 million acres of crops.<sup>7</sup> That number is forecasted to increase to 91 million acres of soybean plantings in 2018 and 2019.<sup>8</sup> Currently, USDA estimates the gross value of U.S. soybean production at approximately \$48 billion annually. *See* ER 029. That number is up from approximately \$29 billion ten years ago, and \$13 billion twenty years ago.<sup>9</sup> U.S. soybean sales exceeded \$42 billion in 2016, accounting for more than 20% of domestic crop sales and — by themselves — more than 11% of all agricultural commodity sales nationwide.<sup>10</sup>

In turn, American soybeans are a major player in the global agricultural economy. The United States is the world's leading soybean producer and a leading soybean exporter. *See* ER 029. Soybean exports have more than doubled in the last three decades and set a volume record in 2016, when the United States exported

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<sup>7</sup> *See* SoyStats, <http://soystats.com/planting-data-crop-area-planted/> and <http://soystats.com/2013-highlights/> (last visited April 30, 2018).

<sup>8</sup> *See* James C. Webster, *Forecast for U.S. Soybean Demand: Strong and Stronger*, American Soybean (Winter 2018), at 10, available at [https://soygrowers.com/wp-content/uploads/2013/01/AmericanSoybean\\_Winter2018\\_Fnl\\_WEB.pdf](https://soygrowers.com/wp-content/uploads/2013/01/AmericanSoybean_Winter2018_Fnl_WEB.pdf).

<sup>9</sup> *See* SoyStats, <http://soystats.com/value-history/> (last visited April 30, 2018).

<sup>10</sup> *See* USDA Economic Research Service, <https://data.ers.usda.gov/reports.aspx?ID=17845> (last visited April 30, 2018).

more than 2 billion bushels of soybeans.<sup>11</sup> The value of whole-bean exports to the top three customers alone (China, Mexico, and Japan) exceeded \$14 billion in 2016. *See id.* Total soybean exports – beans, meal, and oil – are a substantial share of total agricultural exports for the United States. *See* Soybean FEIS at 106.

American soybean exports are an important part of meeting international nutrition and sustenance needs. Historically, American soybeans have been critical elements of global nutrition because they have important health benefits (they are a good source of protein, carbohydrates, fat, calcium, folic acid, iron, and dietary fiber, and they are heart-healthy), they are versatile (they can be consumed as beans, ground into flour, made into a meat alternative or tofu, prepared as beverages, or used to make a nut butter, just to name a few examples), and they are affordable.<sup>12</sup> Indeed, soybeans are a complete source of protein because they supply all the amino

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<sup>11</sup> *See* SoyStats, <http://soystats.com/u-s-exports-soybean-export-history/> (last visited April 30, 2018).

<sup>12</sup> *See* USAID, *Soybeans Commodity Fact Sheet*, <https://www.usaid.gov/what-we-do/agriculture-and-food-security/food-assistance/resources/soybeans-commodity-fact-sheet>; USAID, *Food Aid Product Description Sheet for Soybeans*, [https://www.usaid.gov/sites/default/files/documents/1866/FoodAidProduct\\_InfoGuide.pdf](https://www.usaid.gov/sites/default/files/documents/1866/FoodAidProduct_InfoGuide.pdf); USAID, *Corn Soy Blend/Plus Commodity Fact Sheet*, <https://www.usaid.gov/what-we-do/agriculture-and-food-security/food-assistance/resources/implementation-tools/corn-soy>; World Initiative for Soy in Human Health (“WISHH”), *The Role of Soy In Nutrition for Developing Countries*, <http://www.wishh.org/the-role-of-soy-in-nutrition-for-developing-countries/>; Soyfoods Association of North America, *Soy Fact Sheets*, <http://www.soyfoods.org/soy-products/soy-fact-sheets> (all last visited April 30, 2018).

acids that are essential for human growth and development, and they are a cheaper source of complete protein than eggs, chicken, or beef.<sup>13</sup>

For these reasons, the United States has for nearly fifty years provided soybeans and soy-based fortified blended foods to developing countries for both emergency and development food assistance. *See supra* n.12. Further, United States soy growers work directly with partners in more than 23 developing countries in Asia, Africa, and Central America to provide agricultural development assistance, build agricultural value chains, and create a long-term demand for U.S. soy exports.<sup>14</sup> According to USDA, soybeans and their derivatives are the most traded agricultural commodity and account for over 10 percent of the total value of global agricultural trade. In 2008-09, global trade in soybeans and soybean products surpassed global trade of wheat and coarse grains, and USDA projects that by 2025, global trade will increase in soybeans by 22 percent, in soybean meal by 20 percent, and in soybean oil by 30 percent.<sup>15</sup>

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<sup>13</sup> *See* WISHH, *The Role of Soy in Nutrition for Developing Countries*, *supra* n.12.

<sup>14</sup> The ASA facilitates the international grower partnerships through WISHH. *See* WISHH, *Origins, Mission & Vision*, <http://www.wishh.org/what-we-do/origins-mission-vision/>; Soyfoods Association of North America, *Feeding the Hungry*, <http://www.soyfoods.org/good-for-the-planet/feeding-the-hungry> (both last visited April 30, 2018)

<sup>15</sup> *See* USDA Economic Research Service, *Major Factors Affecting Global Soybean and Product Trade Projections* (May 2016), <https://www.ers.usda.gov/amber-waves/2016/may/major-factors-affecting-global-soybean-and-products-trade-projections/> (last visited April 30, 2018).

## 2. Sugarbeets

Sugarbeets' primary use is for production of refined sugar, which is an important ingredient in the domestic food supply. Sugarbeet crops also are used to produce food additives, dietary supplements, and livestock feed; for some alternative-medicine purposes; and as an ingredient in a common de-icing solution that enhances the efficacy of the solution on hazardous roadways and bridges during inclement weather.<sup>16</sup>

The biology of a sugarbeet complicates and enhances the economic risk profile of a sugarbeet grower. Like carrots, sugarbeets are biennial crops, meaning that it takes two years for them to complete their life cycle: the first year is a vegetative phase, and the second year is a reproductive phase. Sugarbeets harvested as agricultural crops are harvested during the first year of the cycle; sugarbeets harvested for beet seed production are harvested during the second year.<sup>17</sup> The two-year cycle is important because it means that growers who harvest their sugarbeets as vegetables cannot produce their own seed for future planting (and must always

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<sup>16</sup> See USDA, Glyphosate-Tolerant H7-1 Sugar Beet: Request for Non-regulated Status, Final Env'tl. Impact Statement ("Sugarbeet FEIS") (2012) at ix, 70, available at [https://www.aphis.usda.gov/aphis/ourfocus/biotechnology/brs-news-and-information/CT\\_Sugarbeet\\_documents](https://www.aphis.usda.gov/aphis/ourfocus/biotechnology/brs-news-and-information/CT_Sugarbeet_documents).

<sup>17</sup> See USDA Animal and Plant Health Inspection Serv., *About Roundup Ready Sugarbeet*, [https://www.aphis.usda.gov/aphis/ourfocus/biotechnology/brs-news-and-information/ct\\_sugarbeet\\_about](https://www.aphis.usda.gov/aphis/ourfocus/biotechnology/brs-news-and-information/ct_sugarbeet_about) (last visited April 30, 2018).

buy seed), and growers who harvest their sugarbeets for the purposes of seed production cannot harvest them as vegetable crops (and must specialize in seed production). In turn, this makes sugarbeet seed production a highly specialized agricultural operation. *See id.* Sugarbeet seed growers invest heavily in biotechnology research and breeding programs, and on average it takes eight to ten years to develop and introduce a new seed variety.<sup>18</sup>

Sugarbeets have a longstanding, well-established role in the domestic agricultural economy. Beet sugar (as distinguished from cane sugar) typically accounts for approximately 50 to 60 percent of domestic refined sugar production; in turn, domestic refined sugar production typically accounts for approximately 90 percent of domestic refined sugar consumption. *See* Sugarbeet FEIS at ix, 70-71. For the past fifty years, farmers have planted sugarbeets on more than 1.0 million acres of U.S. farmland, with total acreage of planted sugarbeets reaching 1.56 million acres in 2000. *See id.*<sup>19</sup> Cash receipts for sugarbeets in the United States were \$2.95 billion in the 2015-16 crop year.<sup>20</sup> Globally, the United States is among

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<sup>18</sup> *See* Mike Spieker, *The Evolution of Biotech Sugarbeets*, The Sugarbeet Grower (Aug. 24, 2017), available at <https://www.sugarpub.com/features/the-evolution-of-biotech-sugarbeets>.

<sup>19</sup> *See also* USDA Economic Research Service, *Characteristics and Production Costs of U.S. Sugarbeet Farms* (Oct. 2004), at ii, available at [https://www.ers.usda.gov/webdocs/publications/47160/33292\\_sb974-8.pdf?v=41795](https://www.ers.usda.gov/webdocs/publications/47160/33292_sb974-8.pdf?v=41795) (last visited April 30, 2018).

<sup>20</sup> *See* USDA Economic Research Service, *Sugar & Sweeteners, Background*,



the largest producers of sugarbeets, ranking third in 2016 behind the European Union and Russia. *See* Sugarbeet FEIS at 1.<sup>21</sup>

**B. Weeds are a major threat to the Growers and their crops, and biotechnology solutions are critically important.**

Farming is a risky business. Year after year, growers face uncertainties relating to weather, pests, yields, prices, government policies, global markets, and trade policy. Financial challenges – rising input and capital costs, debt, expensive insurance, and limited credit – are ever-present. Farm income, subject to fluctuation with these and other risks, is highly volatile.<sup>22</sup> Downswings in farm income put immense pressure on growers and their decisions about investment, spending, and labor. Growers have little margin for error, and mistakes in resource allocation may lead to financial ruin.

Weeds are a major threat to both soybeans and sugarbeets. Weeds compete with crops for light, nutrients, and soil moisture, harbor insects and diseases, interfere with harvest, and cause extra wear on harvest equipment. *See* Soybean

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<https://www.ers.usda.gov/topics/crops/sugar-sweeteners/background/> (last visited April 30, 2018).

<sup>21</sup> *See also* International Sugar Organization, *The Sugar Market*, <https://www.isosugar.org/sugarsector/sugar> (last visited April 30, 2018).

<sup>22</sup> *See* Nigel Key, *et al.*, *Farm Households Experience High Levels of Income Volatility*, Farm Economy (USDA Feb. 22, 2017), <https://www.ers.usda.gov/amber-waves/2017/januaryfebruary/farm-households-experience-high-levels-of-income-volatility/>.

FEIS at 69; Sugarbeet FEIS at 241. In the case of soybeans, weeds are a greater threat to production than either insects or diseases, and they have been estimated to cause a potential yield loss of 37% in production worldwide. *See* Soybean FEIS at 69. The Weed Science Society of American reports that weeds cause a 49.5% yield loss in soybean crops without herbicidal weed control.<sup>23</sup> In the case of sugarbeets, the Beet Sugar Development Foundation reports that growers regard weed control as the single largest production challenge to the industry, and competition from uncontrolled weeds can suppress crops so severely that no salable crop grows.<sup>24</sup> Before the advent of crops genetically engineered to be resistant to glyphosate, growers had limited (and expensive) options in dealing with weeds during the growing season, including hand-weeding and spot treatment with herbicides.

The development of glyphosate-resistant soybeans in the mid-1990s and glyphosate-resistant sugarbeets in the late-2000s changed that. Growers using this technology could spray glyphosate “over-the-top” during the growing season, killing

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<sup>23</sup> *See* Weed Science Society of America, *Perspectives on soybean yield losses due to weeds in North America*, <http://wssa.net/wp-content/uploads/WSSA-2016-Soybean-Yield-Loss-poster.pdf> (last visited April 30, 2018).

<sup>24</sup> *See* U.S. Beet Sugar Industry Submission to the National Academy of Sciences National Research Council Committee on Genetically Engineered Crops (Sept. 9, 2015), *available at* <https://americansugarbeet.org/wp-content/uploads/2017/04/U.S.-Beet-Sugar-Submission.pdf>; Leonard P. Gianessi, *Economic and herbicide use impacts of glyphosate-resistant crops*, 61 *Pest Management Sci.* 241, 244 (2005).

only the weeds and leaving the soybeans and sugarbeets unaffected. Glyphosate is an integral part of farmers' weed-management systems because it is a broad-spectrum herbicide, so the development of glyphosate-resistant seed technologies not only simplified weed management, but also made it vastly more effective.<sup>25</sup>

Glyphosate-resistant crops changed not only weed-management, but also farm-management. One of the key advancements was a major reduction in tillage (including a shift to no- and low-till farming for a significant number of growers), because glyphosate-resistant seed technology allowed for weed control without the need for tillage-based weed-management practices. *See* Soybean FEIS at 73. Tillage reduction benefits growers and increases farm efficiency by reducing fuel and labor costs, soil erosion, and water consumption. *See* Soybean FEIS at 39, 47.<sup>26</sup> According to one estimate, for every 1,000 acres of no-till soybean a grower produces, the grower saves 60% per year in fuel costs and consumption compared to conventional till soybean. *See* Soybean FEIS at 47. In the aggregate, experts

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<sup>25</sup> Jorge Fernandez-Cornejo, *et al*, *Adoption of Genetically Engineered Crops in the U.S.*, USDA Economic Research Service (Feb. 2014) at iii, *available at* [https://www.ers.usda.gov/webdocs/publications/45179/43668\\_err162.pdf?v=41690](https://www.ers.usda.gov/webdocs/publications/45179/43668_err162.pdf?v=41690)

<sup>26</sup> *See also* Comments of Monsanto Company on EPA's Proposed Registration of Dicamba for Use on Dicamba-Tolerant Cotton and Soybean, EPA-HQ-OPP-2016-0127-0016 (May 31, 2016) ("Monsanto Comments"), *available at* <https://www.regulations.gov/document?D=EPA-HQ-OPP-2016-0187-0858>.

estimate that soybean growers using glyphosate-resistant seed technology have eliminated \$385 million in annual tillage costs. *See* Gianessi, *supra* n.24 at 242.

Additionally, for both soybean and sugarbeet growers, glyphosate-resistant seed technology reduced losses associated with weather-related delays in herbicide applications and allowed greater flexibility in crop rotation scheduling, which in turn triggered improvements in both productivity and yield. *See* Soybean FEIS at 147-48. Sugarbeet growers using glyphosate e-resistant seed technology added an entire month to their growing season (thanks to reduced stress on crops because glyphosate is a non-stressing herbicide) and saw a 19% average increase in crop yield over and above conventional sugarbeet seed; these growers also observed a significant increase in the sucrose content of their sugarbeets because the reduction in weed competition resulted in more water and nutrients being available for the crop.<sup>27</sup> Some sugarbeet growers have reported yield increases of as much as 30%.<sup>28</sup> And glyphosate-resistant seed technology made soybean growing so much more productive that growers in New York, South Dakota, and Kansas increased their

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<sup>27</sup> *See* U.S. Beet Sugar Industry Submission to the National Academy of Sciences, *supra* n.24, at 14.

<sup>28</sup> *See* Comments of Western Sugar Cooperative on EPA's Draft Human Health and/or Ecological Risk Assessments for Several Pesticides, EPA-HQ-OPP-2009-0361-0066 (April 13, 2018) ("Western Sugar Comments"). These comments are not yet available on [www.regulations.gov](http://www.regulations.gov), so they are attached to this brief as Exhibit A.

soybean acres planted by 50 to 100 percent due to the ability to control weed species that were previously very difficult to control. *See id.*

Growers are not the only beneficiaries of glyphosate-resistant seed technology — there are also substantial environmental benefits. Streamlined weed management and reduced tillage mean reduced soil erosion and compaction, enhanced water conservation, reduced emissions of carbon and air pollutants (due to reduced tractor emissions and sequestration that results from not disturbing the soil), and improved water quality. Overall, these benefits enhance sustainability in agriculture. *See Soybean FEIS at 120.*<sup>29</sup>

The environmental benefits are substantial. In the case of soybeans, between 1980 and 2011, total soybean production increased by 96 percent, and yield (bushels per planted acre) increased by 55%. At the same time, resource efficiency improved greatly on a per-bushel basis: the land needed to produce one bushel of soybeans decreased by 35 percent, soil erosion per one bushel decreased by 66 percent, irrigation water applied per one bushel decreased by 42 percent, energy use per one

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<sup>29</sup> *See* Keystone Alliance for Sustainable Agriculture, *Environmental and Socioeconomic Indicators for Measuring Outcomes of On-Farm Agricultural Production in the United States* (2d Report, July 2012) at 83, available at [https://ussec.org/wp-content/uploads/2015/10/Field-to-Market\\_Environmental-Indicator\\_Report\\_2012.pdf](https://ussec.org/wp-content/uploads/2015/10/Field-to-Market_Environmental-Indicator_Report_2012.pdf) (last visited April 30, 2018); *see also* Sugar Industry Biotech Council, *Biotechnology Enhanced Sugarbeets*, <http://www.sugarindustrybiotechcouncil.org/consumer-sugar-beet-information/biotechnology-enhanced-sugar-beets/> (last visited April 30, 2018).

bushel decreased by 42 percent, and greenhouse gas emissions per one bushel decreased by 41 percent. *See* Keystone Alliance, *supra* n.29 at 83. Some sugarbeet growers using glyphosate-resistant seed technology report similar dynamics: these growers have observed that their increases in sugarbeet yield require only half the fuel inputs that conventional sugarbeets require, a third less water, and five-fold less chemical application.<sup>30</sup>

The overwhelming benefits of glyphosate-resistant seed technology caused soybean and sugarbeet growers to invest in it rapidly and on a large scale – growers of both crops adopted it widely. By 2009, glyphosate-resistant sugarbeets accounted for approximately 95% of domestic planted sugarbeet crop. *See* USDA, *About Roundup Ready Sugarbeet*, *supra* n.17. By 2007, domestic soybean farmers had adopted glyphosate-resistant soybeans on more than 90% of all planted soybean acres. *See* Soybean FEIS at 80, 91.

**C. Glyphosate-resistant weeds, where present, create farm-management challenges, reduce yields, and undermine environmental benefits.**

Glyphosate-resistant weeds,<sup>31</sup> where present, can create significant challenges to growers' farming operations, reduce their crop yields, and undermine

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<sup>30</sup> *See* Western Sugar Comments, *supra* n. 28.

<sup>31</sup> Resistance is not unique to glyphosate and has been documented with respect to multiple herbicides and other pesticides. *See* Soybean FEIS at 176.

the environmental benefits of adopting glyphosate-resistant technologies. *See* ER 027. Glyphosate-resistant weed species include pigweed, ragweed, horseweed, kochia, waterhemp, goosegrass, Italian ryegrass, and Johnsongrass, to name a few. *See* Soybean FEIS at 6-8 (Appendix 6).<sup>32</sup> As of 2012, USDA estimated that 61 million acres of U.S. farmland were impacted with glyphosate-resistant weeds. *See* Soybean FEIS at 121.

Some glyphosate-resistant species can be particularly damaging – for example, a single female Palmer amaranth plant can produce more than 600,000 seeds in a season, thereby spreading quickly and creating a weed seed bank that can impact crops in future years; grow two to three inches per day, up to a height of eight feet tall; and rapidly overwhelm crops. *See* ER 540-41.<sup>33</sup> Weed seed banks can prolong crop damage attributable to glyphosate-resistant weeds; weed science experts estimate that on average, the bulk of a weed seed bank takes approximately five years to deplete and that some broadleaf weed seeds can last for decades.<sup>34</sup>

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<sup>32</sup> The appendices to the Soybean FEIS are available at [https://www.aphis.usda.gov/brs/aphisdocs/dicamba\\_feis\\_appendices.pdf](https://www.aphis.usda.gov/brs/aphisdocs/dicamba_feis_appendices.pdf) (last visited April 30, 2018)

<sup>33</sup> *See also* Eric Sfiligoj, *Herbicide Resistance: The Numbing Numbers from the Weed Wars*, CropLife (April 2, 2017), available at <http://www.croplife.com/crop-inputs/herbicide-resistance-the-numbing-numbers-from-the-weed-wars/>; Eric Sfiligoj, *The Weed Resistance Problem: A Matter of Billions*, CropLife (April 1, 2014), available at <http://www.croplife.com/crop-inputs/herbicides/the-weed-resistance-problem-a-matter-of-billions/>.

<sup>34</sup> *See* Weed Science Society of America, *Never Let 'Em Seed*,

Glyphosate-resistant weeds require growers to utilize additional herbicides in their weed-management plans and incur the time and expense of additional herbicide applications. USDA reports that between 2008 and 2011, applications of non-glyphosate herbicides increased by 177 percent. *See* Soybean FEIS at 113; 181. Weed scientists estimate the increased cost of the additional herbicides needed to control glyphosate-resistant weeds in domestic soybean crops to be in the range of \$20 to \$30 per acre, and depending on the circumstances, potentially as high as \$42 per acre. *See id.* at 115.

Glyphosate-resistant weeds may also require growers to abandon or limit tillage reductions and revert to antiquated weed-management strategies such as plowing and hand-weeding. *See* Soybean FEIS at 109; 152; 181. No-till farming depends on effective herbicide-based weed control, so many growers facing glyphosate-resistant weeds are increasing their reliance on conventional tillage and employing increasingly aggressive tillage practices. *See id.* at 152, 181. Many growers are also faced with returning to age-old hand-weeding, which is costly, time-consuming, less effective than broadcast herbicides, and labor can be difficult to arrange. According to USDA, hand-weeding costs in a heavily infested field may approach up to \$100 per acre. *See id.* at 114.

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<http://wssa.net/wssa/weed/articles/wssa-neverletemsetseed/> (last visited April 30, 2018).



Weeds can result in significant yield losses – often even after aggressive, expensive weed-management strategies have been attempted. *See Monsanto Br. at 6-7* (collecting record citations). Glyphosate-resistant weeds can cause particularly significant yield losses: Palmer amaranth, for example, can cause soybean yield losses of as much as 79% when present. *See Sfiligoj 2017, supra.*

Finally, glyphosate-resistant weeds threaten the environmental advantages and improvements in sustainability that accrue from no- and low-till farming. According to USDA, several negative environmental impacts are likely to result if conventional tillage increases to control glyphosate-resistant weeds: “reduced soil quality from increased erosion; reduced air quality from increased air particulates and increased exhaust emissions from farm equipment; reduced water quality from the release and mobilization of sediments, nutrients, and other chemicals into surface and groundwater; increased greenhouse gases from burning additional fossil fuels and releases of sequestered carbon from disrupted soil; and reduced biodiversity from habitat loss.” *See Soybean FEIS at ix; ER 029.*<sup>35</sup>

Glyphosate-resistant weeds, where present, are a critical problem for growers that jeopardize their contributions to the food, feed, and fuel supply and broader agricultural economy. Without an effective alternative for controlling these weeds,

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<sup>35</sup> *See also A.J. Price, et al., Glyphosate-resistant Palmer amaranth: a threat to conservation tillage*, 66 J. of Soil and Water Conservation 4: 265-75 (2011).

economic and environmental consequences are likely to accrue and increase. *See, e.g.,* ER 028-29.<sup>36</sup>

**D. Xtendimax combats the problem of glyphosate-resistant weeds, and it is vital that growers have access to it.**

Fortunately, there is an effective tool to fight glyphosate-resistant weeds: dicamba-tolerant crops, used together with Xtendimax. So far, the new dicamba technology is available only for soybeans and cotton – sugarbeet growers hope that it will be approved for use on sugarbeets soon.<sup>37</sup>

For soybean growers, the new dicamba technology has two critical benefits. *First*, it creates a new window of time in which dicamba may be applied to dicamba-resistant soybeans: during the growing season. *See* ER 003, 028. When Xtendimax is used on dicamba-tolerant soybeans during the growing season, it reduces both glyphosate-resistant weed populations and glyphosate-resistant seed banks, thereby

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<sup>36</sup> *See also* Comments of American Soybean Association on Dicamba: New Use on Herbicide-Tolerant Cotton and Soybean, EPA-HQ-OPP-2016-0187 (May 25, 2016), *available at* <https://www.regulations.gov/document?D=EPA-HQ-OPP-2016-0187-0772>; Comments of American Sugarbeet Growers Association on Dicamba: New Use on Herbicide-Tolerant Cotton and Soybeans, EPA-HQ-OPP-2016-0187 (April 21, 2016), *available at* <https://www.regulations.gov/document?D=EPA-HQ-OPP-2016-0187-0478>.

<sup>37</sup> Notably, farmers that grow soybeans in rotation with sugarbeets will see a benefit in reduction of glyphosate-resistant weeds and weed seeds in those same fields.

bringing growers both immediate and long-lasting relief from glyphosate-resistant weeds. *See id.*

*Second*, the new dicamba technology may delay the expansion of herbicide resistance among weed species. As early as 2014, USDA acknowledged that “new technologies such as dicamba could be used to delay resistance development.” *See* Soybean FEIS at 148. At that time, integrating dicamba technology into farmers’ weed-management systems was expected to displace many of the non-glyphosate herbicides that are currently being used on glyphosate-resistant soybean crops, thereby slowing the development of resistance to those herbicides. *See id.* at 147; ER 029. Studies published in 2016 show that dicamba has lived up to that expectation – for example, in areas where Palmer amaranth weed species developed resistance not only to glyphosate, but also to other herbicides, incorporating dicamba into the weed-management system was shown to be effective for control of those species. *See* Monsanto Comments at 3 (collecting citations).

Many soybean growers began using the new dicamba technology following its registration in November 2016, with record results in the 2017 growing season. According to USDA, domestic soybean production in 2017 totaled a record 4.39 billion bushels of soybeans, up two percent from 2016.<sup>38</sup> Planted area for soybeans

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<sup>38</sup> *See* USDA, *Crop Production: 2017 Summary* at 122 (Jan. 2018), available at <http://usda.mannlib.cornell.edu/usda/current/CropProdSu/CropProdSu-01-12->

also set a record, totaling 90.1 million acres, up eight percent from 2016. *See id.* ***Soybean yields set records in nine states where Xtendimax was used.*** *See id.*; Monsanto Br. at 12-13. With yields like these, it is easy to see why sugarbeet growers – battling glyphosate-resistant weeds and endeavoring to prevent them from spreading – are eager for the dicamba-tolerant technology to become available for sugarbeets.

As already discussed, American soybeans play a vital role in meeting global nutrition needs, particularly in developing countries, both as a component of food aid and as a commodity export. *See supra* at Part I.A.1. Global nutrition needs are increasing rapidly: one out of every nine people in the world has insufficient nutrition for a healthy life, and the United States Agency for International Development (“USAID”) reports that to meet the needs of a world population expected to reach 9 billion by 2050, global agricultural production will need to increase by 60 percent.<sup>39</sup> For American soybeans to maintain their historically important role in meeting those needs, soybean production rates and crop yields must increase, too. This makes Xtendimax and the effective weed control that it offers all the more important.

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<sup>39</sup> *See* USAID, *Feed the Future*, <https://www.usaid.gov/what-we-do/agriculture-and-food-security/increasing-food-security-through-feed-future> (last visited April 30, 2018).

**E. Vacatur of EPA's decision to register Xtendimax would harm soybean growers and disrupt their contributions to the food, feed, and fuel supply and the agricultural economy.**

As the foregoing discussion makes clear, in the event the Court does not uphold EPA's decision to register Xtendimax, vacatur of EPA's registration would harm soybean growers and disrupt their contributions to the food supply and agricultural economy. Before Xtendimax, some soybean growers battled glyphosate-resistant weeds at great expense and with crop damage, yield losses, and movement away from tillage methods that create important environmental benefits. With Xtendimax, soybean growers have demonstrated the ability to control glyphosate-resistant weeds and weed seed banks and set record production and yield levels on a record number of acres planted. Requiring soybean growers to battle glyphosate-resistant weeds without the critical benefit of Xtendimax is sure to diminish production and yield levels and reduce control over weed seed banks, in turn disrupting growers' contributions to the food supply and agricultural economy and reversing environmental benefits, not only in the immediate future but also for years to come.

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Advances in farming technology – such as genetic engineering – have reduced the uncertainties that farmers face by, among other things, stabilizing annual weed-management costs, production rates, and crop yields, which in turn reduces annual

volatility in farm income and makes farming more efficient and predictable. Put simply, biotechnology is a crucial tool to keeping farmers productive. As a result, threats to growers' investments in advanced seed technology — and threats to their ability to access biotechnology solutions for weed-management — undermine their ability to operate. It is imperative that growers have access to the latest tools of modern agriculture, such as Xtendimax, to continue to cultivate their crops, sustain the supply of food, feed, and fuel, contribute to global nutrition and sustenance, and drive the domestic and international agricultural economy.

**II. The Court should uphold EPA's Xtendimax decisions out of deference to EPA's special expertise concerning herbicides and their impacts on the environment.**

The Court should uphold EPA's determinations concerning Xtendimax and defer to its particular expertise in making regulatory decisions involving the impacts of herbicides on the environment, natural resources, and human health. Judicial deference to this expertise is important to the Growers who, along with other farmers, rely on EPA's ability to make science-based regulatory determinations in a timely and consistent manner — thereby fostering advancements in agricultural technology.

This Court has long held that when it reviews an agency action that is in the agency's area of scientific expertise and at the frontier of current science, the review will be highly deferential. *See, e.g., Friends of Santa Clara River v. U.S. Army Corps*

*of Engineers*, No. 15-56337, 2018 WL 1702746, at \*11, — F.3d — (9th Cir. Apr. 9, 2018); *Nat. Res. Def. Council v. EPA*, 857 F.3d 1030, 1036 (9th Cir. 2017) (“*NRDC II*”); *Nat. Res. Def. Council v. EPA*, 735 F.3d 873, 877 (9th Cir. 2013) (“*NRDC I*”); *Humane Soc. of U.S. v. Locke*, 626 F.3d 1040, 1059 (9th Cir. 2010); *Forest Guardians v. U.S. Forest Serv.*, 329 F.3d 1089, 1099 (9th Cir. 2003) (all quoting *Baltimore Gas & Elec. Co. v. Nat. Res. Def. Council*, 462 U.S. 87, 103 (1983)). The common denominator in these cases is the principle that when an agency’s scientific determination is a “prediction[], within its area of special expertise, at the frontiers of science,” as opposed to a “simple finding[] of fact, a reviewing court must generally be at its most deferential.” *Baltimore Gas*, 462 U.S. at 103.

This Court has held that this standard of deference applies even if there is scientific controversy and uncertainty concerning the issue the agency is considering. *See, e.g., NRDC II*, 857 F.3d at 1036; *NRDC I*, 735 F.3d at 877; *Humane Soc.*, 626 F.3d at 1059; *Cent. Ariz. Water Conservation Dist. v. EPA*, 990 F.2d 1531, 1540 (9th Cir. 1993); *see also Lands Council v. McNair*, 537 F.3d 981, 988 (9th Cir. 2008) (en banc), *rev’d on other grounds by Winter v. Nat. Res. Def. Council, Inc.*, 555 U.S. 7 (2008) (refusing for the Court “to act as a panel of scientists that ... chooses among scientific studies ... and orders the agency to explain every possible scientific uncertainty”). The principle is that “[a]n agency’s actions need not be perfect,” and the Court will “only set aside decisions that have no basis in

fact, and not those with which [it] disagree[s].” *Forest Guardians*, 329 F.3d at 1099; *accord Ariz. Cattle Growers’ Ass’n v. U.S. Fish & Wildlife Serv.*, 273 F.3d 1229, 1236 (9th Cir. 2001).

Deference is important because Congress has chosen to delegate to agencies — not courts — the power to regulate “at the frontier.” “[A]s long as Congress delegates power to an agency to regulate on the borders of the unknown, courts cannot interfere with reasonable interpretations of equivocal evidence.” *Cent. Ariz. Water Conservation Dist.*, 990 F.2d at 1540. And the agencies — not the courts — are the experts. *See, e.g., Lands Council*, 537 F.3d at 993.

In this case, EPA’s registration decision under the Federal Insecticide, Fungicide, and Rodenticide Act (“FIFRA”), 7 U.S.C. §§ 136–136y, and its determinations pursuant to Endangered Species Act (“ESA”), 16 U.S.C. §§ 1531–1544, are squarely within its area of scientific expertise. Congress has charged EPA with implementing FIFRA and registering herbicides,<sup>40</sup> so EPA’s registration decisions are entitled to deference. *See NRDC II*, 857 F.3d at 1036; *NRDC I*, 735 F.3d at 877. Indeed, EPA has spent its entire existence – nearly fifty years – accumulating the expertise necessary to make determinations about the potential

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<sup>40</sup> *See* EPA, Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and Federal Facilities, <https://www.epa.gov/enforcement/federal-insecticide-fungicide-and-rodenticide-act-fifra-and-federal-facilities> (last visited April 30, 2018).



impacts of herbicides and other pesticides on the environment, natural resources, and human health. EPA's analyses under FIFRA involve a wide range of scientific data concerning potential hazards to humans and non-target species, exposure studies, spray drift and off-target impacts, environmental fate, residue chemistry, and ecological risk assessments.<sup>41</sup> And contrary to Petitioners' erroneous assertion that EPA's ESA determinations are the product of a "home-grown risk assessment" and "uninformed guesses," Pet. Br. at 14-15, EPA is well-equipped to determine the potential impacts of herbicides on protected species and their critical habitat. Accordingly, EPA's ESA determinations are within its sphere of expertise and entitled to deference on judicial review. *See Friends of Santa Clara River*, 2018 WL 1702746, at \*13-14.

Further, Xtendimax is at the frontier of current weed-management agriscience. Xtendimax is currently approved for over-the-top use on only two major agricultural crops, with growers of other crops eagerly awaiting its arrival. And Petitioners themselves describe Xtendimax as an "entirely novel" use of

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<sup>41</sup> See EPA, Data Requirements for Pesticide Registration, <https://www.epa.gov/pesticide-registration/data-requirements-pesticide-registration>; EPA, Ecological Risk Assessment Process under the ESA, <https://www.epa.gov/endangered-species/ecological-risk-assessment-process-under-endangered-species-act>; EPA, FIFRA and Federal Facilities, <https://www.epa.gov/enforcement/federal-insecticide-fungicide-and-rodenticide-act-fifra-and-federal-facilities> (all last visited April 30, 2018); 40 C.F.R. Part 158.

dicamba. *See* Pet Br. at 3.

When reviewed through the proper lens of great deference, EPA's expert registration decisions and environmental determinations with respect to Xtendimax should be upheld. *See* EPA Br. at 30-66, Monsanto Br. at 29-54. Petitioners' erroneous attacks on the EPA's decisions improperly urge the Court to tell EPA how to evaluate scientific disputes, how to resolve uncertainties and controversies about scientific developments, and how to choose among competing scientific assertions.

Notably, judicial deference will not operate to foreclose future oversight of Xtendimax use as additional information about it becomes available. In addition to further oversight by EPA, FIFRA's cooperative federalism approach allows for Xtendimax use to be further regulated at the state level, where authorities may institute state-specific use measures. *See* Monsanto Br. at 4, 17-18. Several states already have imposed such measures. *See id.* at 17-18.

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For the Growers, judicial deference to EPA's expertise about cutting-edge biotechnology is important not only in this case, but also in future cases involving advanced crop technologies that are needed to mitigate risk and keep a farm productive. It is crucial for the Court to review EPA's expert decision in a fashion that preserves the agency's ability to make science-based regulatory assessments and timely address technological advancements in the area of the agency's expertise. In

the long run, insufficient deference to EPA, which is charged with “regulat[ing] on the borders of the unknown,” will compromise the reliability of investments (public and private) in the latest agricultural technology, thereby hindering the efficient and predictable development of much-needed tools of modern agriculture. *Cent. Ariz. Water Conservation Dist.*, 990 F.2d at 1540. The Growers urge the Court to adhere to its well-settled principle of deference so as to avoid such outcomes.

### CONCLUSION

For the foregoing reasons, this Court should deny the petition for review. In the event the Court does not affirm EPA’s decisions, *amici curiae* – consistent with both EPA and Monsanto – urge the Court either to allow additional briefing on the issue of remedy, or to remand without vacatur on the basis of the existing record, as a nationwide vacatur would significantly harm the Growers.

Dated: April 30, 2018

Respectfully Submitted,

s/ Bartholomew J. Kempf

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### **CERTIFICATE OF COMPLIANCE**

I certify that pursuant to Federal Rule of Appellate Procedure 29(a)(4)(G), Federal Rule of Appellate Procedure 32(g)(1), Federal Rule of Appellate Procedure 32(a)(7), and Ninth Circuit Rule 32-1, this brief has been prepared in a proportionally spaced typeface, 14-point Times New Roman font, and contains 6,450 words, excluding the parts of the brief exempted by Fed. R. App. P. 32(f).

Dated: April 30, 2018

s/ Bartholomew J. Kempf  
\_\_\_\_\_  
Bartholomew J. Kempf

**CERTIFICATE OF SERVICE**

I hereby certify that on April 30, 2018, I electronically filed the foregoing with the Clerk of the Court using the CM/ECF system which will send notification of such filing to all registered CM/ECF users.

s/ Bartholomew J. Kempf  
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Bartholomew J. Kempf

# EXHIBIT A

**From:** Regulations.gov [mailto:[no-reply@regulations.gov](mailto:no-reply@regulations.gov)]  
**Sent:** Friday, April 13, 2018 9:49 AM  
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Agency: Environmental Protection Agency (EPA)  
Document Type: Nonrulemaking  
Title: Registration Review: Draft Human Health and/or Ecological Risk Assessments for Several Pesticides  
Document ID: EPA-HQ-OPP-2009-0361-0066

Comment:  
Environmental Protection Agency  
1200 Pennsylvania Avenue, N.W.  
Washington, DC 20004

4/13/2018

Regarding Docket No. EPA-HQ-OPP-2009-0361

Dear Administrator Pruitt:

I am writing today on behalf of Western Sugar Cooperative. A grower-owned beet sugar cooperative spanning four states in the Rocky Mountain West: Montana, Wyoming, Colorado and Nebraska. I serve as Chief Scientist for the organization representing our 860-plus small, family farm owners. We produce roughly ten percent of the domestic supply of beet sugar.

In 2008, Roundup Ready™ sugar beets were first sold into the US market. The first year of planting, half of all American sugar beet farmers planted the biotech beets. The next year nearly 100% of the farmers planted



Roundup Ready™ sugar beets. This was the fastest adoption of a genetically engineered crop in history. In fact, the reason the first year of planting was not 100% was based on the fact the seed companies did not have enough seed to supply the market.

This technology allowed our farmers to take a quantum leap forward in production methods. It would not be a stretch to say this technology saved our domestic industry. In the years since adoption of Roundup Ready™ sugar beets, our sugar yield has increased over 30% (from around 8,000 pounds of sugar per acre to in excess of 13,000 pounds of sugar per acre). That huge increase in productivity also requires fewer inputs: half the fuel, a third less water, and 5-fold less chemical application. If this technology hadn't been introduced, it was cost over twice as much to produce sugar today as it did twenty years ago. Instead, it only costs farmers 19% more on average because they are able to produce so much more with so much less.

Unfortunately, radical environmentalists with vested interest in seeing our technology destroyed (and with little knowledge of farming practices and challenges) are spreading misinformation about Roundup™ and genetically engineered crops. They claim these products are harmful to the environment and for consumption. However, there is no credible, scientific data to suggest these claims are true. In fact, the most comprehensive study on genetically engineered crops conducted by the National Academies of Science conducted in 2017 showed GMOs are safe on all fronts and ultimately provide significant environmental benefit.

In closing, we cannot stress enough how critical Roundup Ready™ seed and Roundup™ are to our industry. We urge the EPA to continue supporting use of both technologies on farm to keep our American growers competitive and productivity leaders.

I am happy to answer any questions you may have or provide you with any additional data necessary.

Sincerely,

Rebecca L. Larson, Ph.D.

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